Heatable glass pane

Patent Claims

1. A heatable glass pane, comprising
   a) two contact busbars (6, 7) of different polarity, which are arranged essentially parallel to one another in their longitudinal direction and parallel to a base edge (2) of the heatable glass pane (1), and
   b) a set of heating wires (9), which are in electrical contact with the contact busbars (6, 7),

   characterized in that

   c) the contact busbars (6, 7) are arranged essentially in a line in their longitudinal direction, and
   d) the heating wires (9) have essentially the same length as one another.

2. The glass pane as claimed in claim 1, characterized in that the heating wires (9) are laid without any points of intersection in relation to one another,
   a) one of the heating wires (9), as the outermost heating wire (9a), making contact with the contact busbars (6, 7) at their outer ends facing away from one another, and
   b) at least each inner heating wire (9) being laid with at least one compensation loop (11) in order to achieve the same heating wire lengths.

3. The glass pane as claimed in claim 2, characterized in that the compensation loops (11) are produced by at least two changes in direction of the laying direction, the heating wires (9) after each change in direction extending essentially in the opposite direction and parallel to the laying direction before the change in direction.

4. The glass pane as claimed in claim 3, characterized in that the heating wires have straight laid sections between the changes in direction, these sections being essentially parallel to a side edge (5) adjacent to the base edge (2).

5. The glass pane as claimed in one of claims 1 to 4, characterized in that at least one partial section of at least one of the heating wires (9) is laid down in undulating fashion.

6. The glass pane as claimed in claim 5, characterized in that, in addition to the formation of the at least one compensation loop (11), different amplitudes of the heating wire undulation are provided in order to achieve the same heating wire lengths.

7. The glass pane as claimed in claim 6, characterized in that at least one of the inner heating wires (9) has a greater amplitude of the heating wire undulation than the next-outer heating wire (9), at least in subregions of its course.

8. The glass pane as claimed in claims 1 and 5, characterized in that the heating wires (9) are guided without any points of intersection in relation to one another by

a) a first one of the heating wires (9), as the outermost heating wire (9a), being connected to the outer ends, which face away from one another, of the contact busbars (6, 7), and

b) each inner heating wire (9) having a greater amplitude of the heating wire undulation than the next-outer heating wire (9), at least in subregions of its course, in order to achieve the same heating wire lengths.

9. The glass pane as claimed in one of claims 1 to 8, characterized in that the heatable glass pane (1) is electrically connected to a heated pane controller, which has at least two heating stages with different heating powers.